

NEW JAPANESE FUNGI

NOTES AND TRANSLATIONS—VII

TYÔZABURÔ TANAKA

DIDYMELLA MORI K. Hara sp. nov. in Dainippon Sanshi Kwaiho (Journ. Sericultural Association of Japan), 26³⁰⁴: 388, 1 text cut. May, 1917. (Japanese.)

Spots inconspicuous; perithecia scattered, punctiform, black, covered by the epidermis which is raised and finally pierced, globoid or depressed globoid, 200–250 μ high, 250–300 μ in diam.; perithecial wall thick, fungoid-parenchymatous, black, cells not definitely distinguished; asci cylindric or long clavate, rounded above, attenuate to short sterigmata below, 70–80 \times 5–8 μ , octosporous, paraphysate; ascospores obliquely monostichous, fusoid, ellipsoid or sub-ovoid, slightly narrowed at both ends, uniseptate at the middle, more or less constricted, 2–3-nucleate in the young stage, homogenous at maturity, colorless, 12–15 \times 5–6 μ ; paraphyses filiform, longer than asci, 1 μ across.

Illustrations: One text cut with four figures showing spots, perithecium, asci, and ascospores.

On twigs of *Morus alba*.

Type locality: Mino (Gifu-ken Prefecture) Kawakami-mura, Oct., 1915, K. Hara.

MYCOSPHAERELLA COLACASIAE K. Hara sp. nov. in Byôchû-gai Zasshi (Journ. Plant Protection), Tôkyô. 5⁵: 355–356. May, 1917. (Japanese.)

Perithecia scattered, punctiform, immersed, later erumpent, globoid or depressed globoid, 60–120 μ diam., black; perithecial wall fungoid-parenchymatous, dark-brown, cells 5–13 μ across; ostiola terminal, verrucaeform or papilliform, often not prominent, simply perforated, openings comparatively large, 25–30 μ across; asci cylindric or clavate, inconspicuously pointed above or more generally rounded, attenuate below, pedicellate, 45–70 \times 8.5–10 μ , octosporous; ascospores biseriata, fusoid, more or less excentrically uniseptate, constricted, upper cell broader and

shorter, pointed, lower cell sometimes attenuate, mostly rounded, 2-nucleate in each cell, $13-17 \times 4-5 \mu$, hyaline, colorless.

On leaves of *Colocasia antiquorum*.

Type locality: Not given. Probably Main Island (Honshû), Japan.

Spots solitary or confluent, at first round, testaceous brown, 1.5 mm. across, finally increasing to 6-30 mm., concentrically zoned and more or less sunken from the surface level, with dark brown margin and broad surrounding area of the same color; perithecia appear on the upper surface of the spots. When the diseased spots reach full maturity they can be seen from the lower surface of the leaf and appear light brownish with dark green margin.

The disease is frequently observed when the host plants are cultivated in damp soil and the first symptoms show during the hottest season. The disease greatly decreases the crop as the tubers cannot grow to the usual size.

For protection against this disease Bordeaux mixture should be used twice or three times in early summer, and if the diseased leaves can be found they should be carefully collected and buried underground with lime. Also avoid cultivation on low, damp soil.

VALSIA MALI Miyabe et Yamada ex M. Miura in Nôji Shiken Seiseki (Agricultural Experiment Station Bulletin) Aomori-ken, Japan, No. 15: 117-141. pls. 1-5, T. 4, ix, Nov., 1915. (Japanese.)

Hyphae septate, hyaline or very pale olivaceous, intercellular, $2-4 \mu$ across; stromata cortical, punctiform or wart-like, of various sizes (1-3 mm. diam. in cultures), no definite border to the host substratum, black, hyphae slate-black to black; pycnidia deeply immersed at the center of a stroma, flask-shaped, opening with a slender canal-like neck, $80-200 \mu$ diam., circumscribed by black walls; pycnosporos expelled as thread-like buff tendrils which at maturity are readily disseminated by water; cylindrical or allantoid, obtuse at both ends, $7-10 \times 1-1.5 \mu$, homogeneous inside, hyaline; perithecia circinate surrounding the pycnidial cavity, flask-shaped, long-necked, with black walls, of various sizes, $100-250 \mu$ diam.; asci numerous, clavate, often pedicellate, $20-30 \times 5-8 \mu$, hyaline, octosporous, paraphysate; ascospores cylindrical, slightly curved, continuous, nearly as large as pycnidia, hyaline, agranulate.

On apple, causing a somewhat destructive blight disease, called "Furanbyô" in Japanese. The disease first appears on the surface of branches as brownish spots with irregular or nearly oblong circumference, slightly elevated from healthy portion, then gradually drying out, inconsiderably sunken, more or less darkened, and cracking on the outer surface, finally disclosing the pustules which are scattered over the diseased surface. No secretion of liquid was observed, which is usual in case of fire-blight (Hiyakebyô) caused by *Bacillus amylovorus* also known in northern Japan.

Type locality: Not given. Distribution: Northern part of Honshû and Hokkaidô.

The name, *Valsa Mali*, first appeared in a list of important fruit diseases of North Island compiled by Sapporo Agricultural College, which was exhibited at the Fifth Industrial Exposition held at Osaka during 1903-04 ("Sapporo Nôgakkô Hen, Hokkaidô Jûyô Kwaju Byôgai" n. d., printed before April 1, 1903), later described by Y. Takahashi and H. Okamoto in Hokkaidô Nôji Shikenjo Ihô (Circular of the Hokkaidô Agr. Exp. Sta.) No. 5: 39-41, fig. 18, published March, 1908. A more detailed account of the fungus was given by Dr. A. Ideta in his Nippon Shokubutsu Byôrigaku (Handbook of the Plant Diseases in Japan) ed. 4, pt. 1 (1909), pp. 295-297, where the original drawing of Prof. G. Yamada is first printed and the dimensions of ascospores are given as $8 \times 1.5 \mu$. Cultural tests were recently reported by Dr. T. Hemmi in Trans. Sapporo Nat. Hist. Soc., 6²: 146-152 (July, 1916), and in Journ. Tôhoku Imp. Univ., Coll. of Agric., 7⁴: 277-287 (Aug., 1916), where the activity of the growth is stated to be remarkably accelerated by an addition of 0.1-0.2 per cent. pyrotannic acid or 0.8 per cent. citric acid to the culture medium.

DIAPORTHE MALI Miura sp. nov. in Nôji Shiken Seiseki (Agr. Exp. Sta., Bull.) Aomori-ken, Japan. No. 15: 77-116, pls. 2, 3, 5. T. 4, ix, Nov., 1915. (Japanese.)

Pomii-colous, caulicolous, often foliicolous; mature spots on fruits 2-8 mm. diam., size not increasing further under natural conditions, round, solitary or irregularly coalescent, more or less

sunken, usually deeper in color than the healthy part, changing the underlying tissue to brown or dark-brown, tissue becoming spongy, imparting slightly bitter taste; hyphae intercellular, septate, 2-5 μ diam., readily producing chlamydo-spores and cylindrospores in culture; chlamydo-spores (formed in culture) catenulate, cinereous or greenish, thick-walled, conspicuously constricted at the junction, numerous granulate, 10-14 \times 5-8 μ ; cylindrospores (formed in culture from fruit spot) straight or curved, tapering toward the apex, pale pinkish-brown in mass, colorless or indistinctly greenish when observed alone, 2-7-septate, occasionally constricted at septum, 38-70 \times 3-3.5 μ , those obtained from leaves in culture measuring 32-80 \times 3-4 μ ; pycnidia, formed as brownish black spots on the surface of entirely decayed fruit, numerous, irregular or often growing in concentric zones, afterwards covered by white or pale olivaceous-white cottony hyphae, semi-spherical, 70-220 \times 70-130 μ , at full maturity exuding from the central opening, a pinkish-brown semi-liquid substance composed of two kinds of pycnos-pores, characteristic of the genus *Phomopsis*; conidiospores 15-18 \times 2-3 μ ; Phoma-spore ellipsoidal, pointed rather distinctly at both ends, continuous, hyaline, guttulate at both ends, 7-9 \times 3-4 μ ; Septoria-spore filiform, slightly curved either near the apex or at the middle, continuous, hyaline, 24-32 \times 1-3 μ ; stromata formed in culture and on decayed twigs placed on culture media, irregular, black outside, white inside, 3-7 mm. diam., producing flat, central Phomosis pycnidia of about 1-1.5 mm. diam., and a certain number of surrounding Diaporthe perithecia with protruding ostiola visible to the naked eye; perithecia (observed on twigs above mentioned) spheroidal or oblate-spheroidal, 300-450 μ diam., with intensely black outer wall and light-brown inner wall; ostiola rather long, conspicuously hairy near the end, with projecting hyphae; asci fusoid, obtuse above, inconspicuously pedicellate below, 45-52 \times 5-10 μ , octosporous, paraphysate; ascospores biseri-ate, fusoid, both ends obtuse, one-septate, constricted, 2-nucleate in each cell, hyaline, 11-13 \times 3.5-4.5 μ .

Leaf-spots occur as pale discolored areas of 1-2 cm. diam., usually producing leaf-curl and final defoliation during the summer, showing under microscope mycelial development through the tissue. Young shoots as well as bearing twigs also show irregular brownish infection at the point about six inches from the end, gradually drying and cracking the surface, finally causing death of the tip of the shoot.

On fruit, leaf and twig of apple.

Locality: Northern Japan (very common).

Illustration: Two collotype plates showing infections of twigs and fruits of apple, one lithographic plate giving detailed structure of the fungus in various stages.

Note: The fruit spot of apple (*Heikwa no Hantenbyô* in Japanese) here described is very widely distributed throughout the territory, most frequently occurring on Jonathan apple, the spotted fruit of which is almost considered as characteristic of the variety. Though closely resembling *Phoma Pomi* Pass. in the cylindrospore formation, the *Phomopsis* stage is entirely different from that, indicating a common identity with *Phomopsis Mali* Rob. which is reported as occurring only on twigs and not on fruits. The discovery of the ascogenous form in culture enabled the investigator to prove these observed forms stages of *Diaporthe*. "Diaportheose" is proposed as the new English name for this disease.

PHRAGMIDIUM RUBI-SIEBOLDII Kawagoe sp. nov. in Kagoshima Kôto Nôrin Gakkô Gakujutsu Hôkoku (Bull., Kagoshima Imp. Coll. Agr. and Forest.), Kagoshima, no. 1; 201-203, 1 pl. T. 5, iii, Mar., 1916. (Japanese.)

III. Telia hypophyllous, elongated, orange yellow, quite conspicuous macroscopically as silky protrusions of veins through laciniately ruptured epidermis, discoloration of the upper surface being brownish, the margin of which is rather indefinite; hyphae bundles projecting from cortical as well as bast portion of substrata attain to 2,200 μ in whole length when measured with teliospore bundles; teliospores elongate-lanceolate with conspicuously long pedicels, mostly 5-celled, gradually narrowed and sharply pointed at the apex, 136-221 \times 15.6 μ , the terminal cell occupying nearly one half of total length, slightly constricted at the septum, membrane smooth, equally thick, hyaline, 2 μ across, contents granular, mixed with oil globules, orange yellow; pedicels very long, average 2,000 μ in length, membrane thicker than that of spore, measuring 3 μ across, smooth and hyaline, contents also hyaline.

On leaves of *Rubus Sieboldii*.

Type locality: Toso, Nakagôriu-mura, Kagoshima-gun, Kagoshima-ken. (K. Toyohira, May, 1911.)

Illustration: One lithographic plate with a photograph of affected leaf. Teliospores and a magnified cross section of telia are given.

The fungus, discovered only in the place above mentioned, is of doubtful importance so long as the connections with other forms remain obsolete. The fungus occurs on the plant about the beginning of May and lasts until the end of June.

POLYPORUS PUBERTATIS Yasuda sp. nov. in Shokubutsugaku Zasshi (Botan. Magaz.) Tôkyô, 30³⁵¹: 66. Mar., 1916 (Japanese); l. c. 31³⁶²: 54. Feb., 1917 (nom. nud.).

Pilei firmly suberose, sessile, dimidiate, margin semi-circular, cross-section triangular, thick, $7.5-8 \times 3-4 \times 2-3$ cm., light; surface even, minutely velvety with soft fuzzy hairs, azonate, sub-fuscous; context sub-fuscous, thick; tubes long, about 0.5-1 cm., thick-walled, pinkish; mouths small, rotund; spores numerous, ellipsoid, smooth, $5 \times 3 \mu$.

On wood bark.

Type locality: Miyagi-mura Kashiwagura, Seta-gun, Kôzuke-nokuni (Gunma-ken prefecture), collected by Jûgorô Tsunoda.

Japanese name: Hônen-take.

Notes: In the latter article this fungus is placed under Sect. 4. *Fusci*, c. "Hymenium ohne Zystiden; Sporen gefärbt."

NEOTTIOSPORA THEAE Sawada sp. nov. in Nôji Shikenjô Tokubetsu Hôkoku (Special report, Agr. Exp. Station) Taiwan (Formosa), No. 11: 113, pl. 4, figs. 30-31. T. 4, ii, Feb., 1915. (Japanese.)

Spots epiphyllous, irregular, cinereous to brown, sparingly dotted with black, minute fruiting bodies, margin definite, elevated, purplish-black; pycnidia subepidermal, black, depressed globose to spheroid, $84-93 \times 108-135 \mu$, erumpent with ostiola; pycnosporos cylindrical, both ends rounded or obtuse, $12-14 \times 3 \mu$, unicellular, hyaline, ciliate at one end; setae filamentous, 9-11 μ long.

On leaves of *Thea sinensis*. Occurring rarely on mature leaves in Formosa and seems to cause no serious damage.

Type locality: Shinchikuchô Nanshō, May 3, 1910. Y. Fujikuro.

Illustrations: Two black and white lithographic figures.

PESTALOZZIA GOSSYPHII Hori sp. nov. ex S. Thuruda, in Byôchû-gai Zasshi (Journ. Plant Protection) 4³: 27-28. T. 6, iii, Mar., 1917. (Japanese.)

Spot ochraceous-brown, about 16 mm. diam. with irregularly zoned fuliginous margin; acervuli punctate at the middle part of the spot, first covered by epidermis, then erumpent, black, 212-255 μ broad; conidiophores hyaline, 2-4 \times 0.6-0.9 μ ; conidia clavate, thickened at the apex, gradually narrowed toward the base, 5-celled, terminal and basal cells hyaline, 3 inner cells fulvous, the middle cell most strongly darkened (18-27 \times 4-8 μ); setae 2-3, slightly swollen at the apex, hyaline, 6-16 \times 1.6 μ .

On leaves of *Gossypium herbaceum*.

Type locality: Shidzuoka-ken (prefecture) Ogasa-gun Hikimura, Dec. 10, 1916, S. Tsuruda.

Japanese name of the disease: Sômen no Hanmonbyô (Leaf-blotch of cotton).

The disease caused a little damage on the upland cotton in the Shidzuoka prefecture during the wet harvest season of 1916 but has never been reported from any other cotton-growing sections of Japan or Chôsen (Korea). It is very easily distinguished from ordinary "Hantenbyô" (Leaf-spot disease, caused by *Cercospora gossypina* Cke.) by its reddish-buffy-brown spots which, in the latter species, present a grayish-brown portion less conspicuously dotted in the center with acervuli.

The dimensions of the conidia, which are omitted in the original publication, were obtained by communication with the original author, Mr. Tsuruda, who, to our greatest regret, died a few days before the reply containing this information reached the writer of this review.

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